

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 March 2005 (24.03.2005)

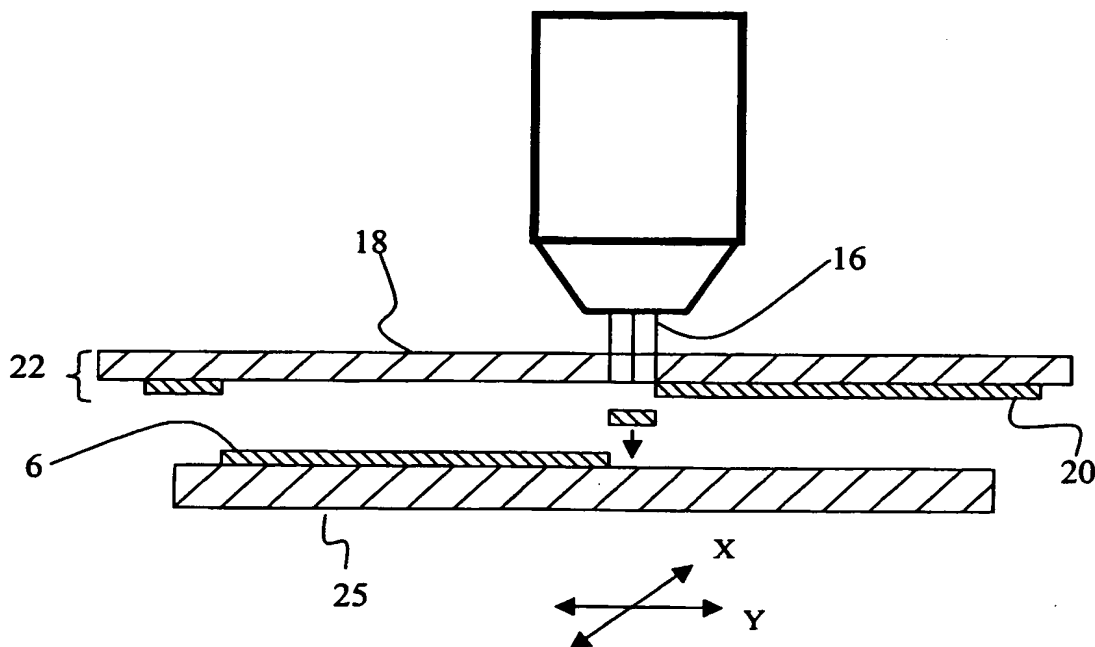
PCT

(10) International Publication Number
WO 2005/026043 A2

- (51) International Patent Classification⁷: **C01B** [US/US]; 8901 Rob's Place, Albuquerque, NM 87122 (US).
- (21) International Application Number: PCT/US2004/024683
- (22) International Filing Date: 29 July 2004 (29.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/491,636 29 July 2003 (29.07.2003) US
- (71) Applicant (for all designated States except US): INTEL-
LIGENT ENERGY, INC. [US/US]; 2955 Redondo Av-
enue, Long Beach, CA 90806 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CHELLAPPA,
Anand [IN/US]; 8909 Opportunity Dr. NE, Albuquerque,
NM 87109 (US). VENCILL, Tom [US/US]; 4916 Sum-
mer Ave, Albuquerque, NM 87110 (US). MILLER, Doyle
- (74) Agents: GREENBERG TRAUIG, LLP et al.; 2450
Colorado Avenue, Suite 400 E, Santa Monica, CA 90404
(US).
- (81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.
- (84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: METHODS FOR PROVIDING THIN HYDROGEN SEPARATION MEMBRANES AND ASSOCIATED USES



(57) Abstract: This present disclosure is generally related to providing thin hydrogen separation membranes coated on porous sub-
strates that are useful in membrane steam reformers and methods for making same. These reformers can be integrated with proton
exchange membrane (PEM) fuel cells to form power systems.

WO 2005/026043 A2



SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Declaration under Rule 4.17:

- *of inventorship (Rule 4.17(iv)) for US only*

Published:

- *without international search report and to be republished upon receipt of that report*